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Application of Virtual Reality Technologies for Modeling the Consequences of Nuclear Tests

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The article explores the possibility of applying the mathematical framework to map the radiation field transmission zone in the area of nuclear tests, as well as the visualization of the built model using virtual reality technology. In turn, the possibility of applying the calculus to study the accumulation of fissile materials in the zone of a supposed nuclear explosion is considered. The authors describe this technology as the basis for analysing the probability of environmental contamination by nuclear products in the area of nuclear tests, as well as the impact of radiation fields on organisms in this environment. While nuclear testing was banned by the 1996 Comprehensive Nuclear-Test-Ban Treaty, the possibility of some countries conducting tests on their territories cannot be neglected. Therefore, there is a increasing demand for digital technology to accurately calculate the physical parameters of a nuclear test and to visually simulate its consequences in order to verify the fact that nuclear explosions occurred.

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Promotional text

This paper presents the obtained results for testing mathematical framework as well as rendering them in VR environment to calculate the radiation field transmission zone, and evaluates this approach for analysing events on the sites of suspected nuclear tests.

Oral preference format

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